

How to educate the public while providing a portable environmentally enriched wagon to a North American Porcupine

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Abstract

During scheduled times throughout the day, zookeepers will give educational presentations. It is important to allow animals to engage in natural behaviors. The objectives of this project were to (a) construct a wagon and (b) to ascertain if the wagon allowed for normal porcupine behaviors to be expressed during formal presentations at the Omaha Henry Doorly Zoo and Aquarium. A wagon was designed and built, that took approximately 53 hours with two persons. To test the wagon’s effectiveness one North American Porcupine (7.3 kg) was used. **Baseline:** The porcupine spent ~76% of her time either on the stage or the floor within the Pavilion, spent ~43% eating and ~20% target training. **Habituation:** With the wagon, floor time decreased (~16%), time on the wagon was ~77% and target training was ~14%. **Public:** Wagon time was ~79%, stage/floor time decreased to ~19% and target training was ~9%. The porcupine’s eating time also increased from ~43% (baseline) to ~59% (public). In conclusion, the construction of the wagon was successful and it provided her enrichment allowing her to exhibit her natural behaviors in front of the general public.

Introduction

- Zoo is an environment where people come to see and be educated on a variety of animal species
- Zookeepers give educational presentations using specific animals
- Efforts have been made to provide and maintain novel enrichment

Objectives

- (a) Provide the North American Porcupine with novel enrichment through the construction of a portable environmentally enriched wagon
- (b) Determine if a portable environmentally enriched wagon provided a North American Porcupine with the ability to express natural behaviors during formal presentations at the Omaha Henry Doorly Zoo and Aquarium

Methods

The project was approved by Alysia Hess and Omaha Henry Doorly Zoo and Aquarium

Wagon Construction

- Nine-step process was developed to build the wagon
- Environmental enrichment aspects were chosen to meet each of the five categories

Wagon Effectiveness

- One North American Porcupine, identified as “Clover” was used
 - 5 years old
 - 7.3 kg
 - Healthy

Table 1: Criteria of training phases

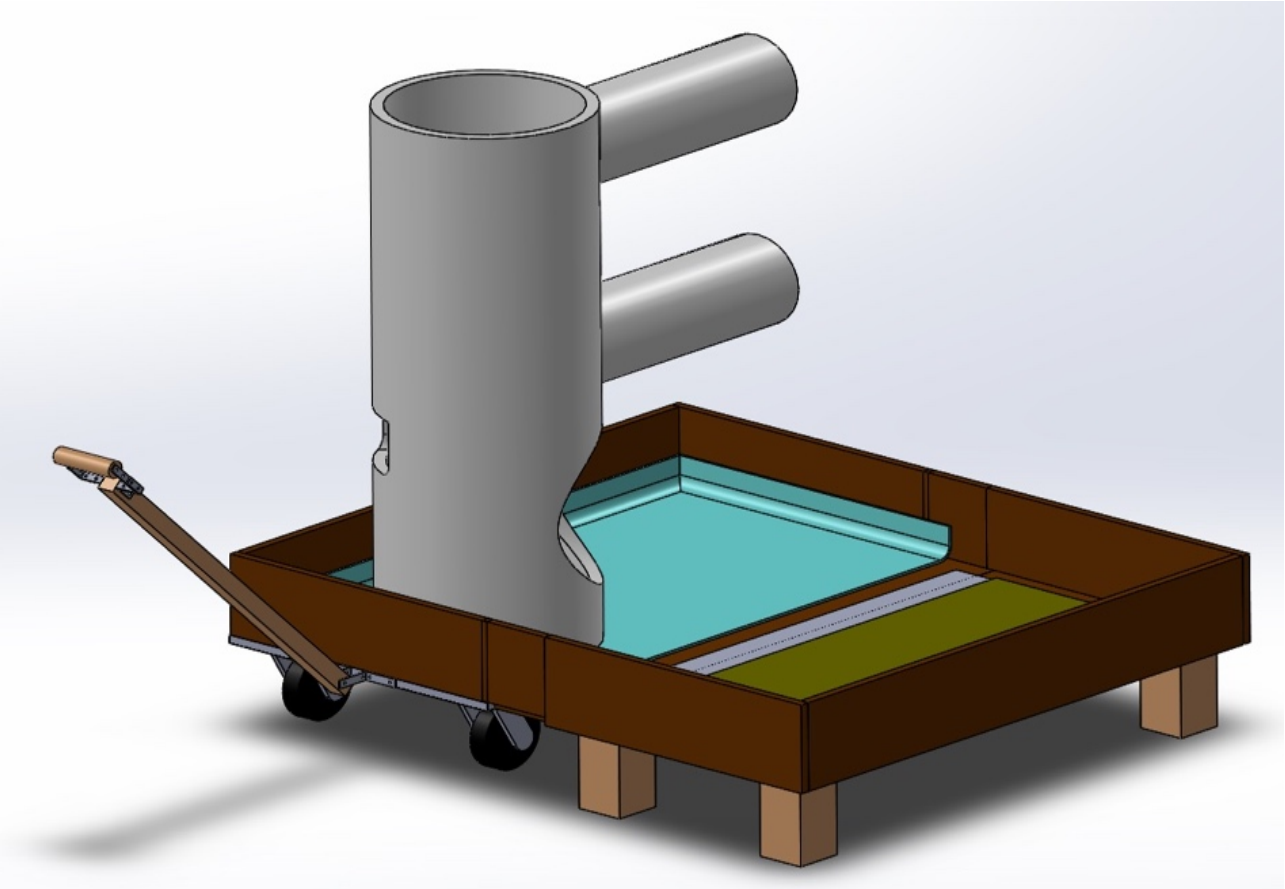
Baseline (B)	Habituation (H)	Public (P)
<ul style="list-style-type: none">• Presented in front of public as normal• Target trained by zookeeper who used food	<ul style="list-style-type: none">• Recorded in back room for privacy• Watched body language to ensure appropriate responses• Encouraged with food by zookeeper	<ul style="list-style-type: none">• Wagon was placed on stage for general public to view• Explored on own without target stick• Rewarded with food by zookeeper• Watched for duration

Table 2: Ethogram of behaviors, postures, and location of the North American Porcupine

Baseline, Habituation, and Public	
Location	
Floor	Walking on carpet
Boxes	Contact with boxes
Stage	Contact with stage
Crate	Contact with crate
Hide	Contact with hide
Behavior	
Eating	Act of eating food
Target training	Whiffle ball target
Posture	
Standing	Cue given to rise on back legs
Other	Climbing, walking without target
Unknown	When videos did not record 600 seconds
Habituation and Public	
Location	
Wagon	Animal is on the wagon
Wagon base	Found on floor of wagon
Tree interaction	Contact with tree trunk
Branch interaction	Contact with branches

Results

Wagon Construction



• Figure 1a
Original Design



• Figure 1b
Final Design

• Cost ~\$63

Wagon Effectiveness

Table 3: Average behavioral duration (seconds)

Phase	B	H	P
Location			
Floor	133.6	97.0	72.2
Boxes	65.6	---	---
Stage	342.4	---	39.4
Crate	43.0	---	15.0
Hide	---	112.0	71.2
Wagon	---	464.0	473.4
Wagon base	---	94.0	134.2
Tree trunk	---	46.0	236.8
Tree branch	---	212.0	31.2
Behavior			
Eating	257.8	252.0	355.4
Target training	117.4	81.0	55.4
Posture			
Standing	11.0	---	6.2
Other	212.2	267.0	183.0
Unknown	37.0	39.0	---



Wild Kingdom Pavilion common area where formal presentations were completed

Conclusions

Wagon Construction

The construction of the portable environmentally enriched wagon was successful. The project was cost friendly and finished within the desired time frame

Wagon Effectiveness

The goals of the enriched wagon were fulfilled. Clover was able to exhibit her natural behaviors using the portable environmentally enriched wagon in front of the general public during formal educational presentations

Acknowledgements

Ms. Heather Biszak, along with Ms. Alysia Hess, helped approve the wagon and obtain all of the required materials for construction. Mr. Patrick Keep took time to help build the wagon which sped up overall construction time. All of the keepers working in the Wild Kingdom Pavilion were vital to the project. They were comfortable with me taking time out of daily duties to work on the project and were flexible in allowing me to record them presenting with Clover to be analyzed later. Their patience was sincerely appreciated.